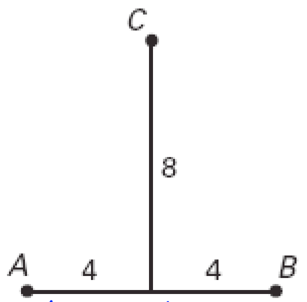
Geometry Date_____ 5.1 Assignment
Perpendiculars & Bisectors (pp 264-267)

1. What is your name?

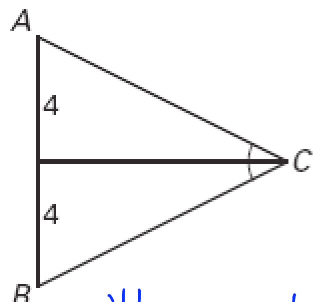
Tell whether the information in the diagram allows you to conclude that C is on the perpendicular bisector of $\overline{AB}$. Explain your reasoning.

2.



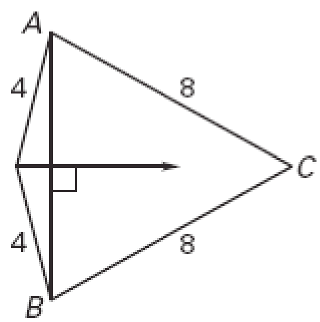
No It's on a bisector, not the ⊥ bisector.

3.



No it's on a bisector, not ⊥ bisector

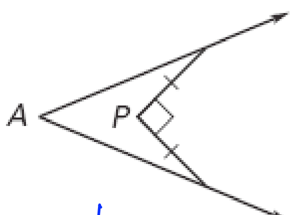
4.



yes

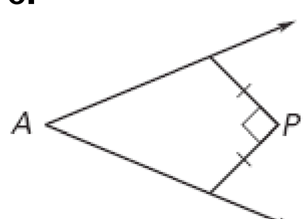
Tell whether the information in the diagram allows you to conclude that P is on the on the bisector of $\measuredangle A$. Explain your reasoning.

5.



No. It's not ⊥

6.

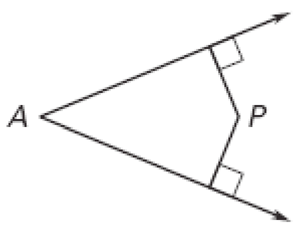


No, it's not ⊥ to the rays.

Geometry Date_____ 5.1 Assignment
Perpendiculars & Bisectors (pp 264-267)

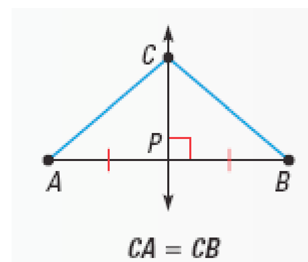
to the rays.

7.



No it's not equidistant

Write a two-column or a paragraph proof.



8. Write a proof for the perpendicular bisector theorem.

Given: $\overleftrightarrow{CP}$ is the perpendicular bisector of $\overline{AB}$.

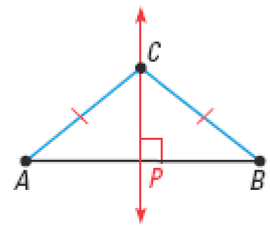
Prove: C is equidistant from A & B.

Plan for proof: Suppose that you are given that $\overleftrightarrow{CP}$ is the perpendicular bisector of $\overline{AB}$. Show that right triangles $\triangle APC$ & $\triangle BPC$ using SAS Congruence postulate. Then show $\overline{CA} \cong \overline{CB}$.

Statement	Reason
1. $\overleftrightarrow{CP}$ is the ⊥ bisector of $\overline{AB}$	1. Given.
2. $\overline{AP} \cong \overline{PB}$	2. Defn of bisector.
3. ∠APC & ∠BPC are rt ∠'s	3 ⊥ ⟷ form 4 rt ∠'s.
4 ∠APC ≅ ∠BPC	4 Rt ∠ thm
5 $\overline{CP} \cong \overline{CP}$	5. Reflexive
6. △APC ≅ △BPC	6. SAS
7. $\overline{CA} \cong \overline{CB}$	7 CPCTC
8. C is equidistant from A & B	8. Defn. of equidistant.

Geometry   Date_____   5.1 Assignment
Perpendiculars & Bisectors (pp 264-267)

9. Use the diagram to write a two-column proof of the converse of the perpendicular bisector theorem.

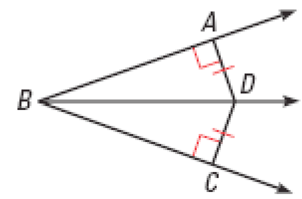


Given: C is equidistant from A & B.
Prove: C is on the perpendicular bisector of A & B.
Plan for proof: Use the perpendicular postulate to draw $\overleftrightarrow{CP} \perp \overleftrightarrow{AB}$. Show that $\triangle APC \cong \triangle BPC$ by HL congruence theorem. Then $\overline{AP} \cong \overline{BP}$, so that AP = BP.

Statement	Reason.
1 C is equidistant from A & B	1 Given.
2. Construct $\overleftrightarrow{CP} \perp \overleftrightarrow{AB}$	2. Construction.
3. $\overline{CA} \cong \overline{CB}$	3 Defn of equidistant
4. $\overline{CP} \cong \overline{CP}$	4 Reflexive
5 $\angle CPB$ & $\angle CPA$ are rt $\angle$'s	5. $\perp$ $\leftrightarrow$ form 4 rt $\angle$'s
6. $\triangle APC$ & $\triangle BPC$ are rt $\angle$'s	6 Defn of rt $\triangle$
7 $\triangle APC \cong \triangle BPC$	7. HL.
8 $\overline{AP} \cong \overline{BP}$ AP = BP	CPCTC Defn. of segment

Geometry Date_____ 5.1 Assignment
Perpendiculars & Bisectors (pp 264-267)

10. Complete the proof of the Converse of the Angle bisector theorem.



Given: D is in the interior of $\measuredangle ABC$ and is equidistant from $\overrightarrow{BA}$ & $\overrightarrow{BC}$.

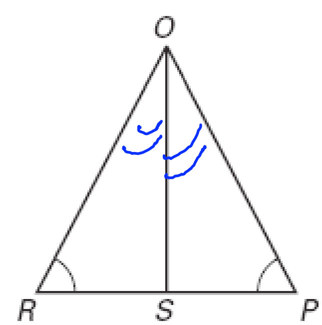
Prove: D lies on the angle bisector of $\measuredangle ABC$.

Statements	**Reasons**
D is in the interior of $\measuredangle ABC$.	
D is _______ from $\overrightarrow{BA}$ & $\overrightarrow{BC}$.	Given
______ = ________	Definition of equidistant.
$\overline{DA} \perp$ ____________, ____________ $\perp \overrightarrow{BC}$	Definition of distance of a point to a line.
	If two lines are $\perp$, then they form 4 right angles.
	Definition of right triangles.
$\overline{BD} \cong \overline{BD}$	
	HL congruence postulate
$\measuredangle ABD \cong \measuredangle CBD$	
$\overrightarrow{BD}$ bisects $\measuredangle ABC$ and point D is on the bisector of $\measuredangle ABC$.	

11. Given: S is on the bisector of $\measuredangle POR$.

$\measuredangle OPS \cong \measuredangle ORS$

Prove: $\overline{OS}$ is a perpendicular bisector of $\overline{PR}$.

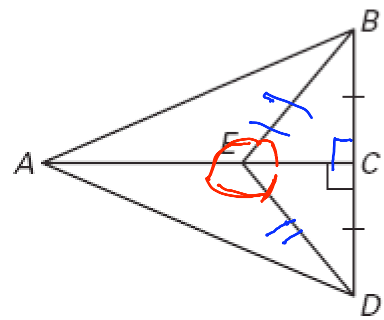


We are given that S is on the bisector of ∠POR. By the defn of a bisector, ∠ROS ≅ ∠POS. We are also given that ∠P ≅ ∠R. By the reflexive property $\overline{OS} \cong \overline{OS}$. Next $\Delta ROS \cong \Delta POS$ by AAS. Next $\overline{OR} \cong \overline{OP}$ by

Geometry Date_____ 5.1 Assignment
Perpendiculars & Bisectors (pp 264-267)

CPCTC By the converse of $\perp$ bisector thm, O lies on the $\perp$ bisector of $\overline{RP}$. This mean $\overline{OS}$ is the $\perp$ bisector of $\overline{RP}$.

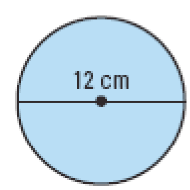
12. Given: $\overline{AC}$ is a perpendicular bisector of $\overline{BD}$.
Prove: $\triangle ABE \cong \triangle ADE$



Statements	Reasons.
1 $\overline{AC}$ is the $\perp$ bisector of $\overline{BD}$	1. Given.
2. $\angle ECD$ & $\angle ECA$ are rt $\angle$'s	2. $\perp$ ↔'s form 4 rt $\angle$'s.
3. $\angle ECD \cong \angle ECA$	3 Rt $\angle$'s are $\cong$
4. $\overline{BC} \cong \overline{CD}$	4 Defn. of bisector
5 $\overline{EC} \cong \overline{EC}$	5. Reflexive
6. $\triangle ABE \cong \triangle ADE$	6. SAS

Review.

Find the missing measurement for the circle shown. (Chapter 1 Section 7)



13. radius

6 cm

14. circumference

≈ 38 cm

15. Area

$\approx 113 \text{ cm}^2$

Find the slope of the line that passes through the given points. (Chapter 3 Section 6)

16. (4, -3) & (-6, 5)

$-4/5$

17. (3, 11) & (-10, 12)

$-1/13$

Geometry Date_____ 5.1 Assignment
Perpendiculars & Bisectors (pp 264-267)

18. (4, 5) & (9, 5)

0

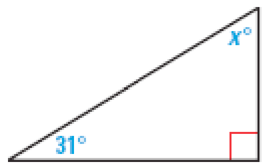
19. (-3, -8) & (8, -8)

0

Geometry Date_____ 5.1 Assignment
Perpendiculars & Bisectors (pp 264-267)

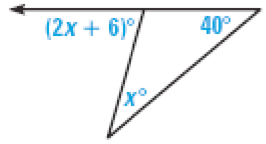
Find the value of x. (Chapter 4 Section 1)

20.



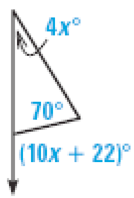
59

21.



34

22.



8